9 Apr 1990

TSNNP-B

TEST SET, NOISE

1. GENERAL. This procurement requires a solid-state white noise test set capable of measuring intermodulation and noise in wideband telecommunications systems.

2. CLASSIFICATION. Type II, Class 6, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall be capable of measuring intermodulation and noise in wideband telecommunications systems within the minimum parameters and accuracies specified below.

3.1 Noise generator.

3.1.1 Noise generator bandwidth. 12 kHz to 12.36 MHz.

3.1.2 Maximum output. 20 dBm or greater into 75 ohms.

3.1.3 Noise output reference level. Adjustable to -12.5 dBm/kHz with filters installed.

3.1.4 Automatic level control. The automatic level control shall maintain the output level within 0 dB and -0.25 dB when filters are switched.

3.1.5 Attenuators. The coarse and fine attenuators shall meet the following specifications:

a. Coarse: -40 dBm to 20 dBm, selectable in 5 dB steps above 0 dBm and 10 dB steps below 0 dBm. The accuracy of setting shall be ±0.5% ±0.1 dB.

b. Fine: 0 dB to 11 dB, selectable in 1 dB steps. The accuracy of setting shall be ±0.5%.

3.1.6 Indicator. The equipment shall be provided with an analog meter or digital meter that has a peak and null indicator. The meter shall have scale ranges of 1 to -1 dBm in 0.2 dB increments and -1 to -3 dBm in 1 dB increments. The accuracy of the meter shall be within ±0.3 dB.

3.1.7 Output impedance. 75 ohms nominal.

3.2 Noise receiver.

3.2.1 Receiver range. 12 kHz to 12.4 MHz.

3.2.2 Sensitivity. -120 dBm when referenced to an effective bandwidth of 2.2 kHz.

3.2.3 Input attenuator. The input attenuator shall be directly calibrated in power ratio and in pW of noise power per 3.1 kHz bandwidth. The range, accuracy, and impedance shall be in accordance with the following:

a. Range: 0 dB to 91 dB, controlled in 10 dB and 1 dB steps.

b. Accuracy: ±0.5% ±0.1 dB.

c. Impedance: 75 ohms nominal.

3.2.4 Noise source. The equipment shall be provided with an internal standardizing noise source that generates over the band of 10 kHz to 13 MHz and in accordance with the following:

a. Level: 1 pW (-90 dBm) per 3.1 kHz bandwidth. The noise level shall not vary by more than ±0.25 dB.

b. Accuracy: ±0.5 dB at 1 pW per 3.1 kHz bandwidth.

3.2.5 Local oscillator. The equipment shall be provided with receptacles for plug-in oscillator boards. The output and RC shall be in accordance with the following:

a. Output: 0.15 to 0.35 Vrms.

b. RC: 1.5 kilohms or greater paralleled by 75 pF or less.

3.2.6 External local oscillator input. The external local oscillator input shall have the following characteristics:

a. Required level: 0.3 Vrms ±20%.

b. RC: 6 kilohms or greater paralleled by 60 pF or less.

3.3 Filters and local oscillators. The equipment shall be provided with bandpass filters, band-stop filters, and local oscillators that have the following center frequencies.

a. 70 kHz

b. 534 kHz

c. 1.248 MHz

d. 3.886 MHz

3.4 Low-pass filter. The low-pass filter shall have a cut off frequency of 108 kHz.

3.4.1 Low-pass filter rejection. At least 25 dB down for frequencies 10% above cut off frequency.

3.5 High-pass filter. The high-pass filter shall have a cut off frequency of 60 kHz.

3.5.1 High-pass filter rejection. At least 25 dB down for frequencies 20% below cut off frequency.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Operation at 400 Hz is not required. Maximum power consumption: 75W.

4.2 Weight. 34 kg (75 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.